

We claim:

- 1) An isolated polynucleotide comprising one selected from the group consisting of:
  - a) a polynucleotide having the sequence set forth in SEQ ID NO: 2, 3, or 147;
  - b) a polynucleotide encoding a transcription factor, which polynucleotide has a sequence that is at least 70% identical to the sequence set forth in SEQ ID NO: 2, 3, or 147;
  - c) a polynucleotide that is a fragment of any one of b); and
  - d) a polynucleotide that hybridizes under stringent conditions to any one of a) or b).
- 5 2) A vector comprising at least one polynucleotide of claim 1.
- 3) An expression cassette comprising the isolated polynucleotide of claim 1, wherein  
10 the isolated polynucleotide is operably linked to a promoter, and wherein the polynucleotide is  
in sense or antisense orientation.
  - 4) A plant comprising the expression cassette of claim 3.
  - 5) The plant of claim 4, wherein the promoter is a seed coat-specific promoter, a  
15 tissue-specific promoter, a monocot promoter, the napin promoter, the WEREWOLF promoter,  
the 35S promoter, the CaMV 19S, the *nos* promoter, the Adh promoter, the sucrose synthase  
promoter, the tubulin promoter, the actin promoter, the PEPCase promoter, the  
7S-alpha'-conglycinin promoter or those promoters associated with the R gene complex, the  
tomato E8 promoter, the patatin promoter, the ubiquitin promoter, the mannopine synthase  
20 (mas) promoter, the glycinin promoter, the soybean vegetative storage protein (vsp) promoter,  
or a pBAN promoter.
  - 6) The plant of claim 5, wherein the plant is soybean, corn or canola.
  - 7) A method of increasing oil content in a plant comprising disrupting the function of  
25 a protein in the phenylpropanoid pathway of the plant.
  - 8) The method of claim 7, wherein the protein in the phenylpropanoid pathway of the  
plant is selected from the group consisting of a CHS, PAL, TTG1, and LDOX.
  - 9) The method of claim 7, wherein the function of the protein is disrupted by  
suppressing the expression of the gene for said protein.
  - 10) A method of generating a plant having increased oil or protein content, as  
compared to a substantially similar plant not subjected to this method, comprising:

- a) preparing a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a gene selected from the group consisting of CHS, PAL, TTG1, and LDOX, wherein said polynucleotide comprises at least a portion of the gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination; and
  - b) transforming the plant with the chimeric gene of step (a).
- 11) The method of Claim 10, wherein the gene is CHS or TTG1.
- 12) A plant generated by the method of claim 10.
- 10 13) A seed produced by the plant of claim 12, wherein the seed is from canola or soybean.
  - 14) A food product prepared from the seed of claim 13.
  - 15) Oil produced from the seed of claim 13.
  - 16) A meal produced from the seed of claim 13.
  - 15 17) A feed produced from the seed of claim 13.
  - 18) An isolated soy protein produced by the plant of claim 12.
  - 19) The plant of claim 12, wherein the plant is a monocot or a dicot.
  - 20) The plant of claim 19, wherein the monocot is selected from the group consisting of corn, rice, wheat, barley, and palm.
  - 20 21) The plant of claim 19, wherein the dicot is selected from the group consisting of *Arabidopsis*, soybean, oilseed *Brassica*, peanut, sunflower, safflower, cotton, tobacco, tomato, potato, and cocoa.
    - 22) Oil produced from one or more seeds of a transformed plant containing a nucleic acid molecule that comprises an isolated nucleic acid encoding a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a phenylpropanoid pathway gene, wherein said polynucleotide comprises at least a portion of the phenylpropanoid pathway gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination wherein expression of the nucleic acid molecule results in reducing or disrupting the activity of the phenylpropanoid pathway gene product.

- 23) The oil of claim 22, wherein the phenylpropanoid pathway gene is CHS.
- 24) The oil of claim 22, wherein the phenylpropanoid pathway gene is TTG1.
- 25) The oil of claim 22, wherein the phenylpropanoid pathway gene is LDOX.
- 26) The oil of claim 22, wherein the phenylpropanoid pathway gene is PAL.
- 5 27) The oil of claim 22, wherein the oil is blended with oil from a second source, thereby resulting in a blend.
- 28) A method for producing a plant with altered protein content comprising disrupting or reducing the activity of a protein in the phenylpropanoid pathway of the plant.
- 10 29) The method of claim 28, wherein the protein in the phenylpropanoid pathway is selected from the group consisting of CHS, PAL, TTG1, and LDOX.
- 30) The method of claim 28, wherein the activity of the protein is disrupted or reduced by suppressing the expression of the gene for said protein.
- 15 31) Protein produced from a transformed plant containing a nucleic acid molecule that comprises an isolated nucleic acid encoding a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a phenylpropanoid pathway gene, wherein said polynucleotide comprises at least a portion of the phenylpropanoid pathway gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination wherein expression of the nucleic acid molecule results in reducing
- 20 32) or disrupting the activity of the phenylpropanoid pathway gene product.
- 33) The protein of claim 31, wherein the gene encodes a CHS.
- 34) The protein of claim 31, wherein the gene encodes a TTG1.
- 35) The protein of claim 31, wherein the gene encodes a LDOX.
- 25 36) An isolated polynucleotide comprising one selected from the group consisting of:
  - a) a polynucleotide having the sequence set forth in one of SEQ ID NO: 4 through 17, 29, 30, 32 through 96, 128 through 140, 144, 149, 150, 154 through 164, or 165;
  - b) a polynucleotide encoding a phenylpropanoid pathway protein, which polynucleotide has a sequence that is at least 70% identical to the sequence set forth in one of

SEQ ID NOs: 4 through 17, 29, 30, 32 through 96, 128 through 140, 144, 149, 150, 154 through 164, or 165;

- c) a polynucleotide that is a fragment of any one of b); and
- d) a polynucleotide that hybridizes under stringent conditions to any one of a) or b).